

Abstract

The invention relates to a combined method in which a high-resolution image of a sample surface is recorded by means of scanning force microscopy and the locally high-resolution, chemical nature (which is correlated with this) of the sample surface is measured by means of mass spectroscopy. The surface is chemically analyzed on the basis of laser desorption of a restricted surface area. For this purpose, the surface is illuminated in a pulsed form at each point of interest using the optical near-field principle. The optical near-field principle guarantees analysis with a position resolution which is not diffraction-limited. A hollow tip of the measurement probe that is used allows unambiguous association between the chemical analysis and a selected surface area. The highly symmetrical arrangement allows good transmission of the molecular ions that are produced.